



Current Litton Systems, Inc. site, MODNR site file photo

Litton Systems, Inc.

Community Involvement Plan

Missouri Department of Natural Resources

P.O. Box 176, Jefferson City, MO 65102-0176

June 2023



MODNR site file photo

The mission of the Missouri Department of Natural Resources is to protect our air, land, water, and mineral resources; preserve our unique natural and historic places; and provide recreational and learning opportunities, while promoting the environmentally sound and energy-efficient operations of businesses, communities, agriculture, and industry for the benefit of all Missourians.

Litton Systems, Inc. Site Community Involvement Plan

The Missouri Department of Natural Resources developed this community involvement plan (CIP) to facilitate two-way communication between the community surrounding the Litton Systems, Inc. site and the department, and to encourage community involvement in site cleanup decisions. The CIP will help the department plan how to effectively communicate with the community and provide opportunities for public participation that will meet community needs and occur as specific milestones are reached related to the ongoing environmental investigation and cleanup for the site.

The site is located at 4811 West Kearney Street in Springfield, on approximately 70 acres that sit east of the Springfield-Branson National Airport. The department will utilize the community involvement activities outlined in this CIP to ensure residents remain informed and are provided with opportunities to be involved in important site cleanup decisions.

This CIP provides a history and background of the site and community; presents an analysis of community issues and concerns; details a communications action plan and summarizes cleanup activities and the department's community involvement program.

The department utilized several sources of information to develop this CIP, including community interviews and comments, and site files. The department's Superfund section will oversee the implementation of the community involvement activities outlined in this plan. Site cleanup and community involvement activities will follow a process for cleaning up contaminated sites; this process is called the [Comprehensive Environmental Response, Compensation and Liability Act \(CERCLA\)](#), also known as Superfund.

Primary Points of Contact for the Litton Systems, Inc. Site are:

Bryce Bobbitt, P.E.

Environmental Project Supervisor
Engineering and Remedial Project Management Unit
Environmental Remediation Program - Superfund Section
Missouri Department of Natural Resources
573-751-1130
Bryce.bobbitt@dnr.mo.gov

Jennifer Lamons

Community Involvement Coordinator
Environmental Remediation Program - Superfund Section
Missouri Department of Natural Resources
573-751-3907
Jennifer.lamons@dnr.mo.gov



Historical Litton Systems, Inc. site, MODNR site file photo

In This Plan

Introduction	p 4
Site History and Maps	p 5-13
Community Feedback	p 14-15
Site Information Repositories	p 16
Site Action Plan	p 17
Community Profile and Demographics	p 18-19
Appendices	p 20-56



Updates to the Plan

According to past community meeting questions and comments, and recent community interview responses, environmental investigations and findings at the site continue to be a concern to the community. The department recognizes the importance of keeping the community informed, therefore, this CIP will be updated as needed to ensure community concerns continue to be addressed.

Introduction

Community Involvement at the Litton Systems, Inc. Site

Community involvement is the practice of informing and involving the public in the cleanup process by engaging in dialogue and collaboration with community members who may be affected by site contamination. The department's community involvement efforts begin by establishing early and meaningful communication with communities through an exchange of information. This community involvement plan (CIP) for the Litton Systems, Inc. site is designed to ensure that the community is informed about opportunities for public participation that will occur as specific milestones related to the ongoing environmental investigation and cleanup for the site occur. The site's action plan, which is a list of community involvement activities that will be implemented and when they will be used to inform and involve the community in site cleanup decisions, will assist the project team in establishing effective communication with the local community.

The department is committed to providing ample and diverse opportunities for nearby residents, interested citizens, employees and other stakeholders to get information and voice their views and opinions about the site's environmental cleanup activities. Recognizing that people prefer to receive information in different ways, this CIP describes what Litton Systems, Inc. has done, and will do according to community preferences and concerns, to inform and communicate with the community and address their concerns.

During the creation of this CIP, department staff conducted research and community interviews with residents and stakeholders who represent the community. As part of this process, staff provided information to the community and responded to questions. The department will use community feedback contained in this CIP to continue to provide information to the community, address concerns and answer questions raised by the community as work at the site progresses.

Since it is a living document, this CIP will be reviewed and updated as needed to reflect community preferences, environmental milestones and activities at the site. The department and Litton System's, Inc. plan to keep residents and interested stakeholders informed and involved through a variety of communication methods and site activities, which are listed in the site's action plan and could include public meetings, site sheets, community group presentations and site webpage updates during active environmental investigations and cleanup resulting from these investigations.

In order to keep the community informed about site activities and decisions, it is important that information is made available for access and review. For this reason, an information repository of site-related documents has been established at the department's Jefferson City Elm St. location and in the city of Springfield at the [Library Station](#). The Elm St. and Library Station repository contact information, such as the hours of operation, address and phone number can be found on page 16 of this CIP. Current site information and status is posted on the site webpage at dnr.mo.gov/waste-recycling/sites-regulated-facilities/superfund/interest/litton-systems-inc. Additionally, electronic file information can be requested by filing a [Sunshine Law Request](#) with the department.



Site History and Maps



Historical site cleanup and current site photos, MoDNR site file photos

Litton Systems, Inc. Site Map



MoDNR site map

Site Description and Background

The former Litton Systems Inc. site is located at 4811 West Kearney Street in Springfield on approximately 70 acres of land just east of the Springfield-Branson National Airport. Litton Systems Inc. began manufacturing printed circuit boards in the 1960s and closed in 2007. The facility buildings were demolished in 2008, and the site is now a vacant lot with only the concrete building slab remaining. The site is owned by [Northrop Grumman Systems Corporation](#), a subsidiary of Northrop Grumman Corporation that acquired the site from Litton Systems Inc. in 2001. Northrop Grumman is actively investigating and remediating the site. The department is overseeing this cleanup through its Superfund Cooperative Program, an alternative for contaminated sites that otherwise would be referred to the U.S. Environmental Protection Agency (EPA).

Description of Contamination

During Litton's operations at the site, the facility generated and managed waste materials containing metals, such as copper, and solvents, classified as volatile organic compounds (VOCs). The primary solvent used at the facility was trichloroethylene (TCE). Contaminated waste materials generated during manufacturing operations were placed in unlined lagoons, waste piles and pits on the Litton property until the early 1980s. Waste materials generated after that time until closure of the facility operations were transported off-site for proper disposal. The former waste management units did not fully contain the waste materials resulting in contamination of soil and groundwater. Numerous investigations of soils, shallow and deep groundwater, and potential vapor intrusion have been conducted to determine the extent of contamination from Litton's releases both on and off the former Litton property.

An extensive network of karst features, such as voids, caverns, and sinkholes in the shallow bedrock underlies the Springfield area, and many springs surface at various points in the area. These karst features provide preferential underground pathways for groundwater contamination to potentially travel farther than would otherwise occur in soil or non-karstic saturated groundwater zones. Groundwater contamination is often difficult to fully characterize in karst settings as groundwater flow does not follow a predictable pattern in many instances. Investigations by Northrop Grumman are ongoing to refine the extent of groundwater impacts in support of developing a final remedy for groundwater at the site.

Investigation and Cleanup Activities Timeline

The department has been actively involved with the former Litton site since 1979. Early activities conducted by the department included several pre-remedial investigations and site assessments conducted between 1989 and 1993, which documented the presence of metals and VOC contamination, including TCE. Since that time, Litton and Northrop Grumman have conducted additional assessments and site cleanup work with department oversight and approval. Summary information about the various investigations and cleanup activities is presented below.

Inspection and closure of waste management units: The department inspected the facility in 1979 and observed plating waste overflowing from a lagoon into an on-site sinkhole. VOCs, including TCE, were detected in water samples from the lagoon. This raised concerns that plating waste could travel through the karst system on and near the property, possibly contaminating groundwater and adversely affecting nearby springs and private wells. In 1980, the Missouri Clean Water Commission ordered Litton to connect to the Springfield Municipal Sewer System and cease discharges to the waste management units on the Litton property. To comply with this order, the waste management units were closed by 1982, and Litton was connected to Springfield's sewer system.

Soil investigations: In 1985, the department completed a Superfund preliminary assessment, followed by a site inspection in 1988 that included soil sampling and analysis. Sample results showed the presence of copper, chromium, lead, arsenic, silver, nickel, and VOCs above both natural background and health-based screening levels in soil on the Litton property. From 1994 to 2001, Litton conducted phase I (site-wide summary) and phase II (soils) investigations. These investigations were performed to determine the extent of soil contamination associated with the former waste management units. From 2001 to 2006, Northrop Grumman continued remedial investigations to determine the extent of contamination in both soil and groundwater.

Soil cleanup: From 1994 to present, the department has approved and provided oversight for Litton and Northrop Grumman's soil investigation and cleanup activities. Contaminated soil clean-up methods have consisted of soil removal and disposal at approved off-site locations, heating the soil and capturing the TCE vapors, and mixing materials into the soil to mitigate the migration of soil contaminants and help naturally-occurring microbes destroy the TCE. Soil treatment is now complete and target cleanup objectives have been met at all seven areas of concern, including the SB-19 Area, Former Percolation Terrace, A/B Lagoon, Original Acid Pits, New Acid Pits, Former Sanitary Lagoon and the Former Building Sub-Floor Area.

EPA and department investigations 1980-1988: In 1980 and 1981, EPA sampling of lagoon water and monitoring wells documented VOC contamination in groundwater at the site. The department's subsequent investigations between 1980 and 1988 documented VOCs and copper in area springs, and TCE in two private wells. One of the wells contained TCE, but the level was below the drinking water maximum contaminant level (MCL) for TCE of 5 parts per billion (ppb). (MCLs are standards set by EPA to protect public health by limiting the levels of contaminants in public drinking water supplies.) Sampling results showed the presence of TCE in wells and both TCE and copper presence in springs and wells located east of the Litton site.

Department site reassessment 2003-2006: In 2003, the department initiated a site reassessment investigation to evaluate the threat that past contaminant releases at the site could pose to human and environmental health. This investigation included collecting and analyzing water, sediment and air samples from springs and a nearby commercial show cave (Fantastic Caverns) located north and east of the site. Additionally, water samples were collected from private and public drinking water wells located within 4 miles of the site, primarily to the north and east. The department's 2006 site reassessment report documented that VOCs and metals, mainly TCE and copper, were found in groundwater within 4 miles north and east of the Litton site. The department did not identify any other sites contributing to contamination.

Of the more than 70 private drinking water wells sampled in 2004-2005 during the site reassessment, 13 showed detectable levels of TCE. Only one well showed TCE above the MCL and the concentrations were only slightly above the MCL. Water from this well continues to be treated with a carbon filtration system that Northrop Grumman installed in November 2004.

Of the six public wells that were sampled, only one had a detections of TCE. The Country Squire Village well, located 1.5 miles east of the Litton site, has had intermittent detections of TCE, all below the MCL. This well is now monitored quarterly. A total of 10 springs were sampled during the site reassessment, with TCE detections in four of those springs.

Litton groundwater investigations: Results from Litton's phase I and phase II investigations showed the shallow Springfield Plateau aquifer was impacted by metals and VOCs from the site at levels above their respective MCLs. The deeper Ozark aquifer is also impacted in a limited area by VOCs at levels above the MCL. Between 2001 and present, Northrop Grumman has continued to expand its investigations to refine the extent of soil and groundwater contamination on and near the former Litton property.

At the site, groundwater movement in the shallow Springfield Plateau aquifer is generally north-northeast. Area-wide investigations have included subsurface dye traces that showed a hydraulic connection between on-site contaminated groundwater and springs near the site. Additional information on the nature and extent of groundwater contamination is continuing to be collected through ongoing groundwater monitoring employing a network of more than 110 site-specific groundwater monitoring and recovery wells, along with regularly scheduled, rotational sampling and analysis of groundwater from hundreds of private wells in the site vicinity.

Private well sampling 2018-present: In late 2018 and early 2019, in response to heightened public concerns, the department conducted extensive private drinking water well sampling within a focus area around the site. This focus area was established within 4.5 miles of the site, based on subsurface dye trace study data documenting groundwater flow. At that time, the department collected samples from a total of 191 private drinking water wells, and 16 homes that received water from shared wells. Four additional private wells were found to contain TCE above the MCL. Northrop Grumman installed and maintains water treatment systems at these affected residences with the exception of one system that was removed at the owner's request. Northrop Grumman regularly collects samples before and after treatment at the affected residences to ensure the treatment systems are effectively removing TCE to below the MCL.

In March 2019, Northrop Grumman took over the private well sampling program with the department continuing to provide oversight. To date, Northrop Grumman and the department have collectively sampled more than 398 domestic-use wells near the former Litton facility. The number of sampled wells continues to increase, as previously unknown wells are discovered, and permission is granted by property owners to sample those wells and previously known wells. Northrop Grumman collects samples from all wells that have been found to contain TCE below the MCL, as well as from a subset of wells that did not contain TCE during prior sampling. Northrop Grumman provides the sampling results to homeowners and routinely reports the cumulative sampling results to the department. The current, detailed schedule for private well sampling can be found under the "Investigation" tab for the Litton Systems site on the department's webpage at: <https://dnr.mo.gov/waste-recycling/sites-regulated-facilities/superfund/interest/litton-systems-inc>.

During the third quarter 2022 sampling event, Northrop Grumman collected and analyzed groundwater samples from 143 private well locations. TCE and TCE degradation products were not detected or were detected below the analytical reporting limit of 1 µg/L (1 ppb) in 82 of the 143 wells sampled in June, July, and August 2022. In the remaining wells, 57 had detections of TCE or TCE degradation products less than 2 µg/L (2 ppb), one well location had detections greater than 2 µg/L but less than 5 µg/L (5 ppb). In addition, three wells had detections of TCE exceeding the MCL in water entering the onsite treatment systems at each location, however water exiting the treatment system at the three locations contained no detectable TCE or the TCE concentrations that were detected were below the MCL and were reported as "estimated" based on the analytical reporting limit.

Groundwater cleanup: In 1994, treatment of the shallow Springfield Plateau aquifer began in order to control migration of the contaminated shallow groundwater. Northrop Grumman continues to pump and treat groundwater from the Springfield-Plateau (shallow) and Ozark (deep) aquifers to remove TCE and other VOCs. During the second calendar quarter 2022, one well was added to the Springfield-Plateau extraction well system, which now consists of four wells. During the third quarter of 2022, approximately 12.2 million gallons of groundwater were extracted, treated and discharged to the Springfield sanitary sewer system from the Springfield-Plateau and Ozark aquifers. This resulted in removal of approximately 46 pounds of VOCs from the groundwater. By the end of the third quarter 2022, approximately 741 pounds of VOCs were removed from the groundwater since the current groundwater extraction systems began operating in June 2019.

Further expansion of the groundwater treatment systems is continuing. Treatment building upgrades and regularly scheduled operation, maintenance and monitoring of the groundwater treatment systems is ongoing. The department previously approved Northrop Grumman's multi-phase extraction (MPE) pilot testing to assess enhanced removal of TCE from the Springfield-Plateau aquifer. Northrop Grumman submitted a MPE pilot test report to the department in May 2022. Expanded use of MPE for remediating VOCs in groundwater is being evaluated.

Vapor intrusion investigation: Vapor intrusion is a process in which vapors from VOCs (a class of chemicals that evaporate easily and form a vapor in the air) in soil or groundwater migrate indoors where they can accumulate in indoor air to levels of health concern. Vapor intrusion investigations normally start at the suspected contamination source and extend outward from that location. In investigating potential vapor intrusion, soil vapor and indoor air samples are typically collected for a minimum of four calendar quarters to account for temperature and other seasonal conditions that can affect the movement of soil vapors and to provide the basis for any additional vapor sampling locations and depths.

Northrop Grumman is continuing to assess potential vapor intrusion by conducting soil vapor and shallow groundwater sampling on and off the former Litton property. Between April 2017 and December 2020, Northrop Grumman collected soil gas samples both on and off the former Litton property. Off-property included the general area of the airport to the west, residential property to the south, and rights-of-way along public roadways extending several miles to the north, east, south, northeast, and southeast.

Concentrations of contaminants identified in soil vapor ranged from very low to non-detectable in all locations off the Litton property, with the exception of the public right-of-way immediately south of the site on Kearney Boulevard, and in the eastern parking lot areas near the former airport terminal building. Sampling locations in immediate proximity to the former airport terminal ranged from very low to non-detectable. Sampling results collected since April 2017 do not indicate a current impact to indoor air quality within occupied commercial or residential structures including several airport hangers. Northrop Grumman's March 2019 vapor intrusion investigation on residential property south of the site included soil gas, sub-slab, and indoor air sampling at two private properties. VOCs were not detected in the indoor air or sub-slab samples. Low levels of VOCs were detected in soil gas; however, the concentrations were below health-based screening levels. Northrop Grumman is continuing its vapor intrusion assessment at the airport property and local residences.

Fantastic Caverns investigation: The department first conducted air sampling in Fantastic Caverns in April 2004, during the Litton site reassessment investigation. TCE was detected in a sample collected at the second bridge feature inside the cavern. Further air sampling was conducted in February and November 2005. TCE was not detected in cave air in February; however, it was detected in November 2005 at the second bridge. An evaluation of the data concluded that the TCE concentrations were not at levels expected to cause adverse health effects, based on available TCE toxicity values and exposure conditions at that time.

In 2016, the department conducted a third round of air sampling in Fantastic Caverns as part of a statewide investigation of air quality in toured caves near known sources of VOC contamination. Between April 2016 and November 2017, the department conducted a total of 14 air sampling events in Fantastic Caverns. The recommended health-based level of concern for air in a commercial workplace is 8.8 µg/m³, (micrograms per cubic meter). TCE concentrations from several of the sampling locations in the cave were above the health-based level of concern. Among samples collected in the toured portions of the cave, the maximum TCE concentration was 88 µg/m³, measured at the Sink Hole feature on July 13, 2017. These sampling results were all from stationary eight-hour, time-integrated air samples.

Air samples collected over an eight-hour timeframe at specific locations in the cave are not representative of actual exposure patterns for either the public or tour guide staff, since cave tours only spend brief periods of time at each cave feature. In 2018, to better estimate TCE exposure for tour guides, Ozark Underground Lab (OUL), consultant for Fantastic Caverns, collected personal air monitoring samples during 12 sampling events. Periodic exceedances of the health-based level of concern were recorded during five of those events.

In 2018 and 2019, OUL implemented a series of measures to reduce TCE concentrations in air within the tourist portions of the cave. These measures have included drilling boreholes into the lower unoccupied portions of the cave system and using fan-powered ventilation on select boreholes to expel TCE vapors from the cave. The sampling results that Fantastic Caverns has been routinely providing to the department indicates that the cave ventilation efforts have been successful in reducing TCE concentrations in air within the tourist portions of the cave to below levels of health concern. Fantastic Caverns, in coordination with OUL, plans to continue its cave ventilation efforts and perform periodic sampling of air within the cave to ensure that the ventilation efforts are effective in maintaining control of TCE vapors.

Future actions: Northrop Grumman will continue its efforts to refine the extent of impacts from releases on the former Litton property. This includes further work to define groundwater migration pathways via installation and sampling of monitoring wells both on and off the site in the Springfield and Ozark aquifers. Northrop Grumman will continue to

collect and analyze groundwater samples from private drinking water wells as part of the ongoing domestic well sampling program. Northrop Grumman will continue to operate, monitor, maintain, update, and enhance its on-site groundwater extraction and treatment systems for both the Springfield and Ozark aquifers, as well as monitoring and maintaining the home water treatment systems installed at certain residences where the MCL for TCE has been exceeded in untreated well water. Northrop Grumman will also periodically collect additional soil vapor and indoor air data on the airport property.

Agency Actions Taken

In October 1991, the department proposed placing the Litton site on the Missouri Registry of Confirmed Abandoned or Uncontrolled Hazardous Waste Disposal Sites. Litton appealed and agreed to clean up the site, which would preclude the need for the listing. In July 1993, Litton signed a consent agreement with the department to conduct on-site investigation and cleanup. Following EPA's 1993 site inspection prioritization, and subsequent Hazard Ranking System computation, EPA deferred proposing the Litton Systems site for placement on the National Priorities List, EPA's list of the most serious sites in the nation identified for long-term cleanup, because the department had already entered into a cleanup agreement with Litton.

In March 2010, the department entered into a consent decree with Northrop Grumman to perform investigations and remedial actions on the former Litton property and beyond the former Litton property boundaries to assess contaminant migration. This consent decree replaced the 1993 consent agreement with Litton.

On March 14, 2019, the department hosted an informational public meeting in Springfield regarding the Litton site. Information presented at the meeting included a brief site history, a summary of area environmental cleanup and sampling efforts, an overview of future work plans, activities on property belonging to Fantastic Caverns, and a discussion of TCE, the primary site contaminant. Presentations from that meeting are located online at <https://dnr.mo.gov/waste-recycling/sites-regulated-facilities/superfund/interest/litton-systems-inc>. An open forum availability session followed presentations by the department, the Missouri Department of Health and Senior Services, and Northrop Grumman, the responsible party.

On Nov. 7, 2019, the department hosted another public meeting and open house in Springfield. Staff from the department, the Department of Health and Senior Services, and Northrop Grumman provided updates on activities at the Litton site. Information on the investigations at the Electro-Pac site was also provided. Presentations from the meetings can be found online at <https://dnr.mo.gov/waste-recycling/sites-regulated-facilities/superfund/interest/litton-systems-inc>. The meeting consisted of two hours of open house, followed by presentations, a question and answer session and an additional open house period. Presentations covered an overview and update on both sites, including investigations, cleanup activities and future plans.

Future Actions Planned

Northrop Grumman continued remedial investigations in 2022 and is performing additional investigatory work and groundwater treatment system upgrades in 2023. Northrop Grumman will continue:

- Extracting and treating groundwater from the Springfield Plateau and Ozark aquifers, and discharge treated groundwater to the Springfield sanitary sewer system;
- Performing regularly scheduled operation, maintenance and monitoring for the Springfield Plateau and Ozark aquifer groundwater treatment systems;
- Performing regularly scheduled maintenance and sampling of private well treatment systems;
- Performing regularly scheduled sampling and analysis of groundwater from private wells and site-specific monitoring wells;
- Continue evaluating the Springfield Plateau aquifer contamination through installing additional exploratory borings, monitoring wells, and groundwater grab sampling/analysis;
- Collecting and analyzing samples from several springs located in proximity to the site;
- Removing sediment and collecting and analyzing groundwater samples from the lower portion of the MWO-09 borehole, located on the Springfield Branson National Airport property;
- Submitting routine reports to the department for ongoing activities

Northrop Grumman will ultimately develop a comprehensive proposed plan for cleanup of the site, including

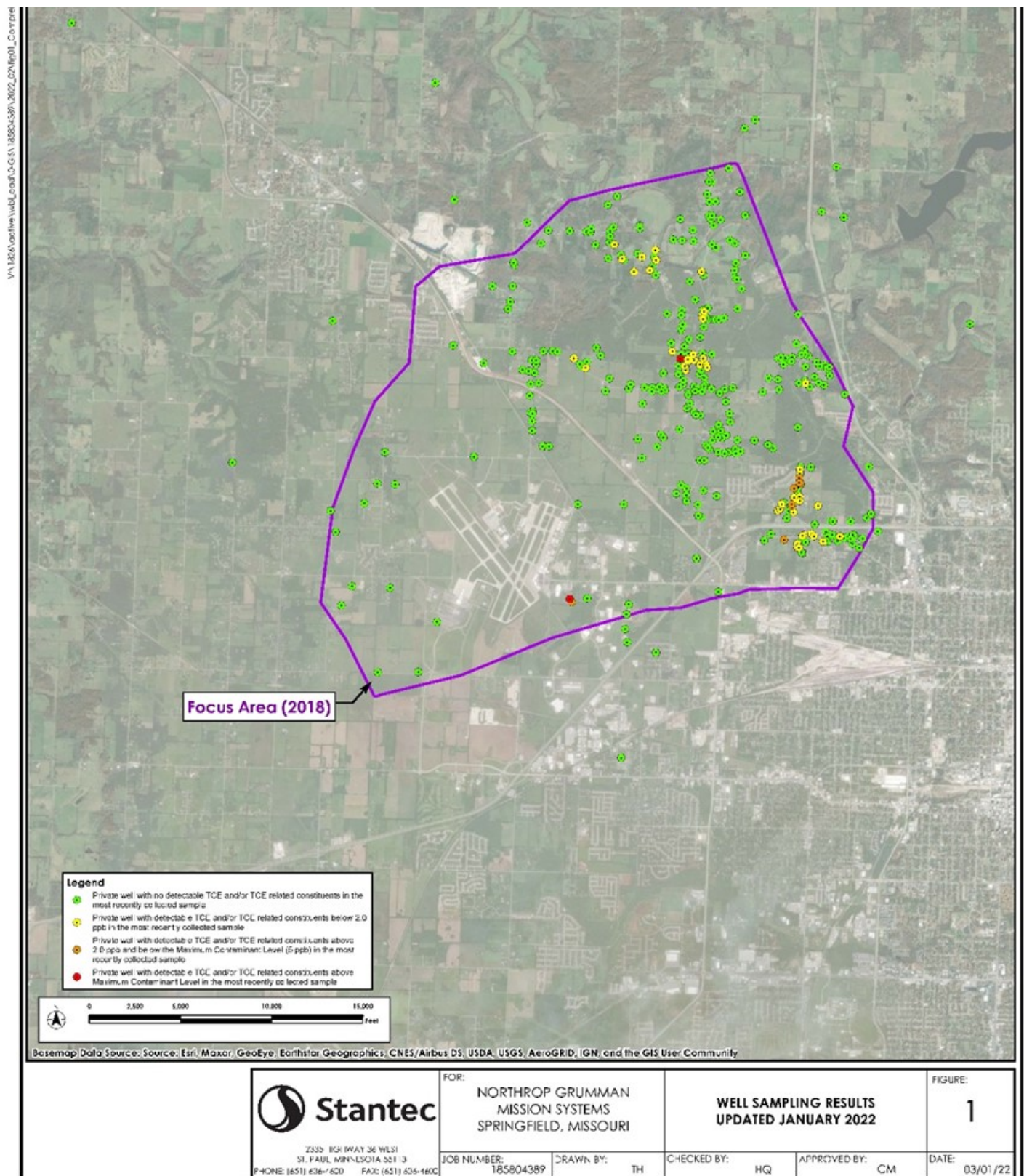
contaminated groundwater. Northrop Grumman will evaluate various options and present them to the department for review. The process of evaluating and selecting a final cleanup remedy will include involvement from the community. In addition to the information for Litton posted on the department's website, the department will establish a local information repository so that the public has convenient access to review and copy information supporting the proposed plan. The department anticipates hosting a future public meeting(s) to provide progress updates on the investigations, interim cleanup activities, as well as providing an opportunity to review and comment on the proposed plan for cleanup of the site.

The Missouri Department of Health and Senior Services (MDHSS) sent out a questionnaire titled *COMMUNITY QUESTIONNAIRE Trichloroethylene (TCE) in Private Wells Springfield, Missouri* in early 2020 to gather input on community concerns and to help MDHSS effectively communicate information important to the community. A total of 353 questionnaires were sent out and 94 were returned. Information gathered through the questionnaires will be shared with the community as part of MDHSS's public health consultation, which will evaluate community exposures to TCE in private well water. MDHSS is currently preparing the public health consultation, with release of the public health consultation report anticipated in the next few months.



Private well sampling, MoDNR site file photo

Litton Systems, Inc. Focus Area and Site Sampling Map



Litton Systems, Inc. Community Involvement Activities

March 14, 2019



Thank you for recently contacting the Missouri Department of Natural Resources and expressing interest in the Litton Systems, Inc. Superfund site in Springfield. We would like to personally invite you to a public meeting that is being held for citizens interested in, or affected by, contamination resulting from the site. Presentations will cover Litton site history, investigations and cleanup activities, and plans for future work; activities on the Fantastic Caverns property; and trichloroethylene, the primary site contaminant. An open forum and availability session will follow the presentations.

Public Meeting Date: Thursday, March 14, 2019

Time: 6:30 p.m. – 8:30 p.m.

Location: Ozark Empire Fairgrounds & Event Center - Center Hall
3001 N. Grant, Springfield, MO 65803

Phone: 417-833-2660



MoDNR site file photo

Meeting location and site information can be found at the following links:

Litton Systems Inc. site webpage: <https://dnr.mo.gov/env/hwp/sfund/LittonSystems/>

Ozark Empire Fairgrounds & Event Center: <https://www.ozarkempirefair.com/directions.aspx>

On March 14, 2019, the department hosted a public meeting at the Ozark Empire Fairgrounds and Event Center's E*PLEX for citizens interested in, or affected by contamination resulting from the site. Presentations covered Litton Systems, Inc. site history, investigations and cleanup activities; and plans for future site work, activities on the Fantastic Caverns property, and trichloroethylene—the primary site contaminant. An open forum availability session followed presentations by the department, the Missouri Department of Health and Senior Services, and Northrop Grumman, the responsible party.

November 7, 2019



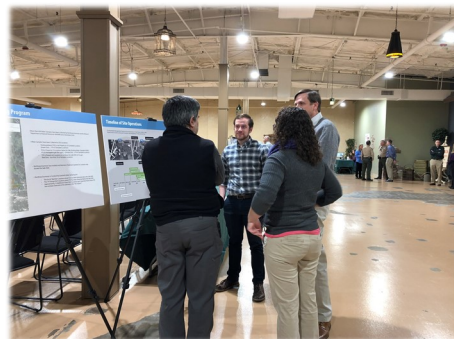
MoDNR will host an Open House Public Meeting at the Relics Event Center regarding the Litton Systems, Inc. Superfund site, located at 4811 West Kearney Street in Springfield, and the Electro-Pac Superfund site, located at 6302 W. Farm Road 84, Willard. The Open House will run from 4-6 p.m., with presentations at 6 p.m. A question and answer session and additional Open House will follow. Presentations will cover an overview and update on both sites including investigations, cleanup activities, and future plans.

Public Meeting Date: Thursday, Nov. 7, 2019

Time: 4:00 p.m. to 8:00 p.m.

Location: Relics Event Center, 2015 W. Battlefield Rd, Springfield, MO

Phone: 417-883-1143



MoDNR site file photo

Meeting location and site information can be found at the following links:

Litton Systems Inc. site webpage: <https://dnr.mo.gov/env/hwp/sfund/LittonSystems/>

Relics Event Center: <https://www.relicsantiquemall.com/event-center-information/>

On Nov. 7, 2019, the department hosted a public meeting and open house at Relics Event Center regarding the Litton Systems, Inc. and Electro-Pac Superfund sites. The meeting format consisted of two hours of open house, followed by presentations, a question and answer session and an additional open house visiting period. Presentations covered an overview and update on both sites, including investigations, cleanup activities and future plans.

Meeting presentations can be found on the department's Litton website at <https://dnr.mo.gov/env/hwp/sfund/LittonSystems/>.

Community Feedback



The Missouri Department of Natural Resources encourages the community to get involved as we oversee site characterization and cleanup of the Litton Systems, Inc. site.

Community Members Provide Feedback to Enhance Community Involvement

Missouri Department of Natural Resources staff surveyed community members, residents, business owners and leaders to find communication strategies that work best for the community and to survey community concerns regarding the Litton Systems, Inc. site and site cleanup. Community responses are summarized below, and will strengthen future communications between the community and the department.

Community interviews were conducted on Nov. 14 and 15, 2022. Interviewees were selected based upon their proximity to and involvement with the site. Department staff interviewed seven community members representing residents and homeowners, airport employees and one business owner. Community questionnaire summaries below refer to responses received by the department, and may not represent the views of the entire focus area community.



What People Understand About the Site

In general, people understand that circuit boards were manufactured and TCE was used for cleaning (degreasing) during the manufacturing process at the Litton Systems, Inc. site. Waste material was placed in lagoons that leaked into groundwater. People know the site has had multiple owners and that although it is currently owned by Northrop Grumman, Northrop Grumman did not cause the release of TCE and other contaminants to the environment. One person commented that the site should have already been cleaned up.



Where People get Information About the Site

Most people are aware of and familiar with the Litton Systems, Inc. site. The majority are not currently receiving information about the site, some indicated they would like to receive information about site events, changes and updates on a quarterly, semiannual or annual basis. Every respondent indicated that they have a computer or cell phone where they can access the site's webpage for updates and receive meeting announcement email alerts. See pg. 53 to register for Litton site email alerts.

A few people indicated they do not have an interest in receiving site updates.

Some people who have indicated that they are currently receiving site information are generally in contact with Northrop Grumman because they have well water contamination and are otherwise in contact with them for cleanup purposes.



Community Interest in the Site

No respondents indicated that they are part of an environmental interest group or citizen's action group. One person pointed out that public meetings about the site have drawn large crowds and they think that indicates there is a lot of community interest in the site. One person said that during a period of new well installation at their home, many community members asked them questions. At least five people indicated that they would be very likely to attend the next public meeting. One person stated that everyone should be very concerned.



Community Concerns About the Site

Over half of respondents were unaware of community concerns regarding the Litton Systems, Inc. site. One person stated that quite a few people would like city water access. Another person was concerned about the contamination ever getting cleaned up. One person was particularly afraid for other people. One respondent stated that [effects on] drinking water and animal habitat affects them the most. Other people were also worried about their drinking water being affected by site contaminant migration. Other comments included an emphatic mistrust in "the system" and a statement that public input and awareness is key. One person asked why cleanup is "taking so long." Community concerns range from no concerns, to personal concerns, to concerns about the entire community and those who are responsible for cleaning up site contaminants.



When and how the Community Wants to be Informed

Five people indicated that they would like to receive site information in the future, at varying frequencies and for varying reasons. Most respondents indicated that email was their preferred form of communication, even if they don't care to receive site information on a regular basis. Two people suggested a community newsletter. All indicated they have a phone or computer for internet and site webpage access, and to receive emails. Participants can visit public.govdelivery.com/accounts/MODNR/subscriber/new?topic_id=940 to sign up for the department's email alert system, which will be used to announce a public meeting or comment period.



Community Members Tell us How to Reach Them

Responses ranged from email, U.S. mail, email at least yearly, email quarterly or at least every 6 months, monthly newsletter and email annually with site changes. Although the frequency preference is different, everyone agrees that email is the way to go. Members of the community may go to public.govdelivery.com/accounts/MODNR/subscriber/new?topic_id=940 to sign up for the department's email alert system, which will be utilized by the department to announce major site events, such as public meetings or public comment periods. It may also be used to notify the community of major site developments.



Community Comments, Suggestions and Recommendations Regarding the Site's Cleanup

- Northrop Grumman and Environmental Works have received multiple compliments on their friendly and conscientious work ethic.
- One person commented that if they hadn't been taking the newspaper at the time, they wouldn't have known about an upcoming public meeting. During interviews, we learned that most people do not subscribe to the newspaper and that email and word of mouth is the best way to reach them.
- One person commented that people are concerned about drinking water obtained from their private well and said that most people don't drink their well water.

Site Repositories

The site's information repositories will contain certain site documents, including this CIP, and information regarding proposed or planned cleanup activities. Additionally, the information repository will contain the administrative record. As required by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the administrative record will contain information that forms the basis for the selection of a response action, including verified sampling data, quality control and quality assurance documentation, chain of custody forms, site inspection and evaluation reports and other site-related reports and documents. The proposed plan as well as the decision document and supporting information will also be included in the administrative record. The information contained in the repository will be updated as new information becomes available.

Information Repository vs. Administrative Record

An **information repository** can be described as the physical location for storing site information. This is usually a centralized public location that provides easy access for community members. The administrative record is located within the information repository. Libraries, other public buildings and the internet are popular places for information repositories.

The **administrative record** contains information that supports why specific response actions are proposed at a site. This includes all the factual and technical data considered or relied upon in the decision making process; as well as documentation showing how the public was involved in providing input into selecting the final remedy. Additionally, all public comments submitted to the department during public comment periods, and the department's responses to those comments will be included in the administrative record.

Litton Systems, Inc. Site Information Repository Locations:

Missouri Department of Natural Resources

1730 E. Elm Street
Jefferson City, MO 65101

Ph: 800-361-4827

Building hours: Monday - Friday, 8 a.m. to 5 p.m.

*The building will be closed on all state and federal holidays.

Site information may also be requested through the Sunshine Law Request process.

The Library Station

2535 N. Kansas Expressway
P.O. Box 248
Springfield, MO 65803

Ph: 417-865-1340

Building hours: Monday - Thursday, 8:30 a.m. to 9 p.m.; Friday, 8:30 a.m. - 8 p.m.; Saturday, 8:30 a.m. - 7 p.m.; and Sunday, 10 a.m. - 6 p.m.

*The building will be closed for 13 holidays, call ahead to check on hours or visit website for closings calendar.

Site Action Plan

In addition to the site information repository, the department will use several tools to ensure that effective communication with the community continues while environmental response activities are underway at the site. This CIP is intended to be a dynamic document that may change as the project progresses, as community information needs change or as other effective methods for maintaining two-way communication with the affected community are identified.

When establishing objectives for a site-specific community involvement action plan, several factors are taken into consideration, including state and federal requirements, site contaminants and extent of contamination, and community interest in and concerns regarding the site.

The department has and will continue to engage the community in decision making activities that will help guide site cleanup activities and final cleanup decisions. Based on community interview responses (pgs. 45 to 51), the department has developed a site action plan that will ensure the community receives site information in a way, and at a frequency that allows community members to be active participants in site cleanup decisions.

Community Involvement Activities at the Site

Based on community interviews, the department has committed to providing the following means of communication with the community:

Site Webpage - the department maintains a site webpage at dnr.mo.gov/waste-recycling/sites-regulated-facilities/superfund/interest/litton-systems-inc. The webpage is periodically updated as new information, or public meeting or involvement opportunities are available.

Site Sheet - the department created an informational sheet that is posted as a link on the site webpage. The site sheet will be periodically updated at key stages of the site cleanup process to summarize findings, impart decisions and convey other important site information. The site sheet will include non-technical language and supporting graphics as needed for clarity. The site sheet will be located in the information repository, on the department's website, and may be distributed at public meetings.

Public Notices, News Releases and Email Updates - the department will place a public notice in the local newspaper or submit a news release to local media when the site reaches key points as it goes through the CERCLA process, such as when the proposed plan becomes available or when the record of decision has been signed, and to notify the public of important site events, such as when a public meeting is scheduled or when announcing the beginning of public comment periods. Major event notifications will also be sent via email to anyone who signs up to receive email notifications. To sign up for this service, visit our website at dnr.mo.gov/waste-recycling/sites-regulated-facilities/superfund/interest/litton-systems-inc, scroll down and click on the green button titled "Get Updates on this Issue," located on the bottom right of the page. Follow the directions to sign up for email updates.

Public Meetings and Availability Sessions - the department will host public informational meetings about the Litton Systems, Inc. site to receive public comments at key times during the cleanup process, such as when cleanup decisions are proposed.

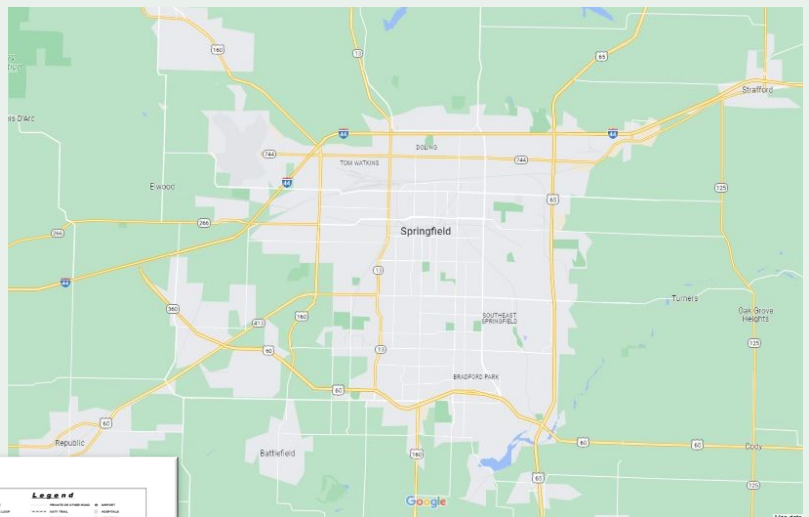
Comment During Public Comment Periods - comment periods are the primary way the department receives input from the community on proposed cleanup decisions. Comment periods usually last thirty days (may be extended, if a written request is submitted to and approved by the department) and are required at key points in the cleanup process. Comments are usually made in writing to the department or by speaking at a public meeting. The department will formally respond to all written and oral comments received at public meetings or hearings.

Community Profile and Demographics

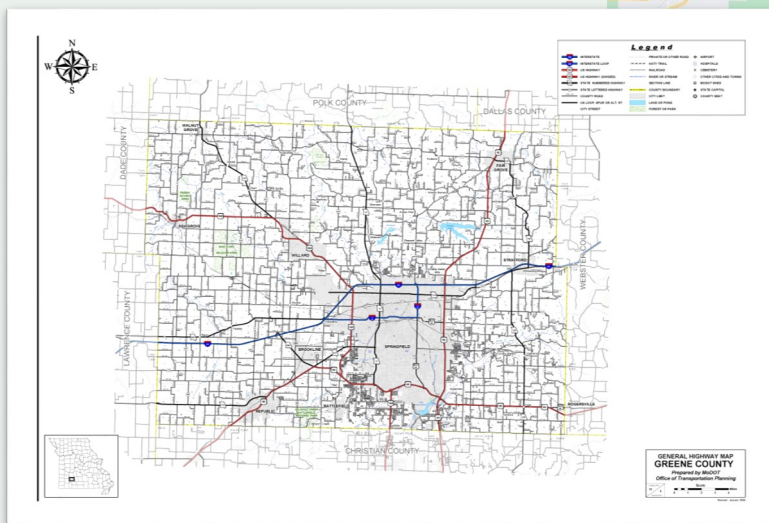
The [city of Springfield](#) is located in Greene County, in southwestern Missouri. Springfield is the largest city in Greene County, encompassing 81.32 square miles. According to the July 1, 2020 U.S. Census Bureau American Community Survey Quick Facts, the population of Greene County in 2020 was approximately 298,915; the population of Springfield was approximately 169,176 at that time. The city supports the regional population as a retail, educational, tourism, cultural, health and social services, and hospitality center.

According to the April 1, 2020 U.S. Census and U.S. Census Bureau American Community Survey Quick Facts, Springfield's population in 2020 grew in diversity; 87.6% were white, 4.3% were black, 0.7% were Native American, 1.8% were Asian, 4.3% were Hispanic or Latino; 4.4% were two or more races. Females made up 51.8% of Springfield's population. There were 78,027 households in Springfield in 2020, with an average of 2.01 persons per household. Median household income was \$37,491, an estimated 21.7% of the population lived in poverty. In 5.1% of households, languages other than English were spoken at home by persons aged 5+ years. In persons aged 25 years and older, 91.1 were a high school graduate or higher, 28.7% had obtained a bachelor's degree or higher. The percent of the population of Springfield age 16+ in the civilian work force was 59.7%. 89% of the population had access to a computer at home. This and more information can be found at www.census.gov/quickfacts/fact/table/springfieldcitymissouri,US/POP010220.

Map of Springfield and Greene County, MO



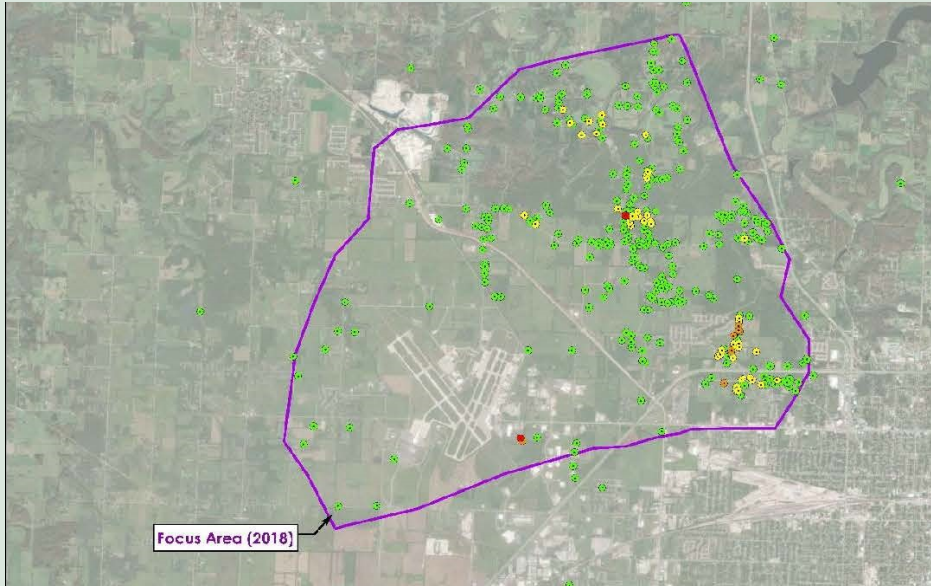
Springfield map, courtesy of Google Maps



Greene County map, courtesy of Greene County, MO

Community Profile and Demographics, cont.

Map of Focus Area for the Litton Systems, Inc. Site



Map courtesy of Stantec and Northrop Grumman Mission Systems

Demographic information was obtained from the [U.S. Environmental Protection Agency's EJSCREEN site](#). Community dynamics change regularly; EJSCREEN uses multiple sources of demographic information to get a better picture of the most current demographics within a specified area. For this site, we chose to survey the Litton Systems, Inc. well sampling focus area. The map above demonstrates the focus area for the Litton Systems, Inc. site. Demographic information obtained from citizens living within the focus area is summarized below.

Litton Systems, Inc. Site EJSCREEN 2019 ACS Demographic Summary

The U.S. Environmental Protection Agencies EJSCREEN tool provides census information that describes the demographics of the local community living within the Litton Systems, Inc. site's focus area. In this community, there were 2,191 households, 64% were owner occupied and 36% were renter occupied. The local community consisted of 5,434 residents; of which, 96% were White, 1% were Black, 0% were Asian and 3% were of two or more races. 47% were male, 53% female. Of the total focus area population, 7% were aged 0-4, 26% were 0-17, 74% were aged 18-plus and 13% were aged 65-plus. Of the residents who were aged 25 or older, 2% had less than a 9th grade education, 5% had between a 9th and 12th grade education with no diploma, 26% were high school graduates, 29% had some college with no degree, 11% had obtained an associate degree and 27% had a bachelor's degree or more.

In the Litton Systems, Inc. site focus area, 98% of people spoke only English at home, conversely, 0% spoke no English at home. Household income varied; 10% made less than \$15,000, 12% made \$15,000 to \$25,000, 25% made \$25,000 to \$50,000, 25% made \$50,000 to \$75,000 and 29% reported making \$75,000 or more per year. This and more information can be found in the EJSCREEN reports in the Appendix section, on pages 31-33.



Appendices

Appendix A

Site Contacts

Site Contacts

State Regulatory Site Contacts

Bryce Bobbitt

Environmental Project Manager
Engineering and Remedial Project Management Unit
Environmental Remediation Program - Superfund
Section

Missouri Department of Natural Resources
573-751-1130

Bryce.bobbitt@drn.mo.gov

Jennifer Lamons

Community Involvement Coordinator
Environmental Remediation Program - Superfund
Section

Missouri Department of Natural Resources
573-751-3907

Jennifer.lamons@dnr.mo.gov

Statewide Elected Officials

Gov. Mike Parson

Office of Governor Michael L. Parson
P.O. Box 720
Jefferson City, MO 65102
573-751-3222

[Email](#)

Lt. Gov Mike Kehoe

Office of Lieutenant Governor
State Capitol Building—Room 224
Jefferson City, MO 65101
573-751-4727

[Email](#)

State and U.S. Representatives

Missouri House of Representatives - Visit house.mo.gov to find contact information for your current Missouri representative.

Missouri Senate - Visit senate.mo.gov to find contact information for your current Missouri senator.

U.S. House of Representatives - Visit house.gov/representatives/find-your-representative to find contact information for your congressional representative.

U.S. Senate - Visit senate.gov/senators to find contact information for the current U.S. Senators for Missouri.

Springfield City Officials

Ken McClure

Mayor

Ph: 417-864-1651

[Email](#)

Jason Gage

City Manager

Ph: 417-864-1006

[Email](#)

Collin Quigley

Deputy City Manager

Ph: 417-864-1004

[Email](#)

Maurice Jones

Deputy City Manager

Ph: 417-864-1116

[Email](#)

Springfield City Council

Busch Municipal Building
840 Boonville Ave.
4th Floor
Springfield, MO 65802
Ph: 417-864-1651

[Email](#)

Monica Horton

Zone 1 Council Member

[Email](#)

Site Contacts cont.

Newspaper

Springfield News-Leader

651 Boonville Avenue
Springfield, MO 65802
Ph: 417-836-1219

[Email](#)

SGF Neighborhood News

Ph: 417-864-1003

mhaase@springfieldmo.gov

Television Stations

KY3 - NBC
KOLR10 - CBS
KRBK - FOX
KSPR - ABC
KOZK16 - Ozark Public Broadcasting

Radio Stations

KSMS-FM, 90.5 - Public Radio
KSMU-FM, 91.1 - Public Radio
KICK-FM, 92.3 - News, Talk, Sports
92.9 The Beat - Top 40
KWTO, 93.3 FM and 560 AM - News, Analysis, opinion
KTTS-FM, 94.7 - Country
JOCK-ESPN Radio, 96.9 FM, 99.9 FM and 1060 AM - Sports
KXUS-FM, 97.3 US97 - Classic Rock
KDRU-FM, 98.1 - Drury University Community Radio
KTXR-FM The Dove, 98.7 - Adult Contemporary
KWPQ-FM, 103.3 - Blues
KRZD-FM, 107.5 - Rock
KWND-FM, 88.3 - Christian Contemporary
KWFC-FM, 89.1 - Gospel Music

*Not a comprehensive list of approximately 58 stations available, but a diverse representation of radio stations available in Springfield.

Site Contacts cont.

County Government

Greene County County Commission

Greene County Commission Office
1443 N Robberson Ave, 10th floor
Springfield, MO 65802
Ph: 417-868-4112
Email: [Commission](#)

Springfield—Greene County Health Department

227 E. Chestnut Expressway
Springfield, MO 65802
Ph: 417-864-1658

Greene County Resource Management

Environmental Division
940 N. Booneville Ave. Room 315
Springfield, MO 65802
Ph: 417-868-4147



MODNR site file photo

Appendix B

What is Superfund?

What is Superfund?

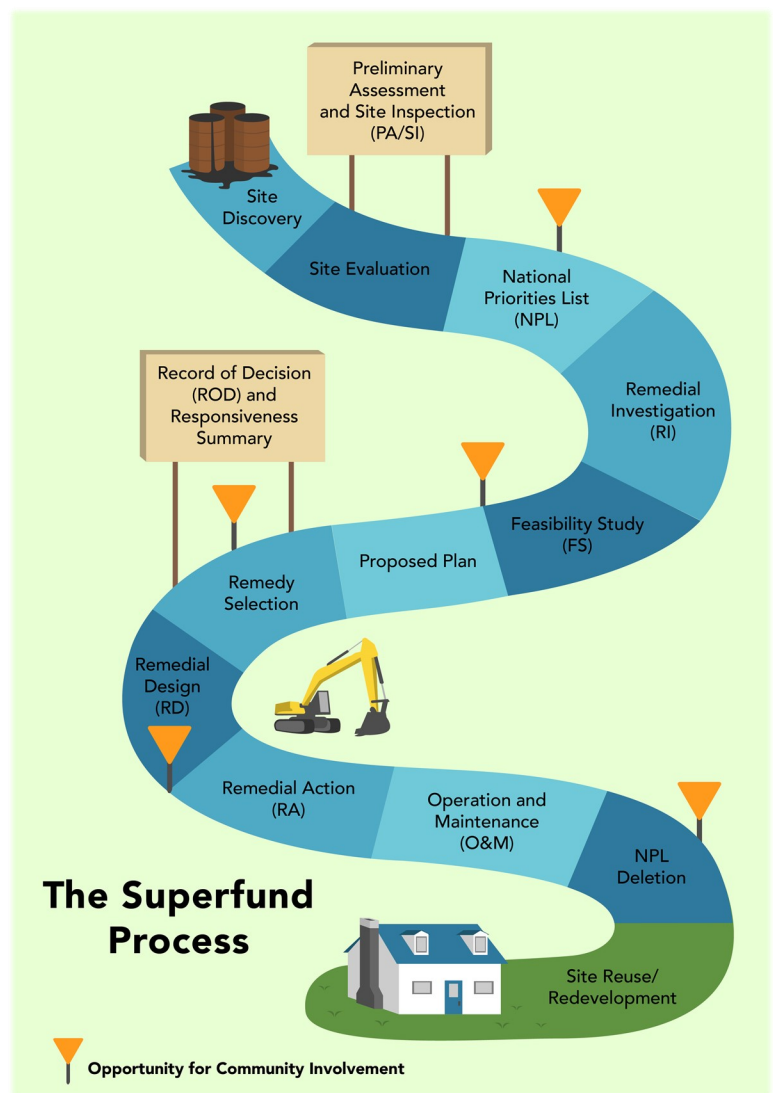
Thousands of contaminated sites exist nationally due to hazardous waste being dumped, left out in the open, or otherwise improperly managed. These sites include manufacturing facilities, processing plants, landfills, mining sites and others. In the late 1970's, toxic waste dumps such as [Love Canal](#) and [Valley of the Drums](#) received national attention when the public learned about the risks to human health and the environment posed by contaminated sites. In response, Congress established the [Comprehensive Environmental Response, Compensation and Liability Act \(CERCLA\)](#) in 1980.

CERCLA is informally called Superfund. It allows and provides guidance for cleaning up contaminated sites. It also forces the parties responsible for the contamination to either perform cleanups, or reimburse the government for EPA or state-lead cleanup work. When there is no viable responsible party, Superfund gives EPA or state government the funds and authority to clean up contaminated sites.

Superfund's goals are to:

- Protect human health and the environment by cleaning up contaminated sites;
- Make responsible parties pay for cleanup work;
- Involve communities in the Superfund process;
- and
- Return Superfund sites to productive use.

Gold signs on the graphic indicate times during the Superfund cleanup process where the public can get involved. Examples of community involvement available during these times could include the following: public notices, public meetings, visiting the information repository and reading site information, and providing comments and suggestions during public comment periods.



Superfund Cleanup Process Explained

The Superfund process is also known as the site cleanup process. It is important to have a general understanding of the Superfund cleanup process in order to understand where input from the public is appropriate, and why. Cleaning up Superfund sites is a complex, multi-phase process. The Litton Systems, Inc. site is currently in the characterization phase of the cleanup process. The following information gives details about each phase, how they relate to the cleanup process and provides opportunities for community involvement:

Assessment



Preliminary Assessment/Site Investigation (PA/SI)

This phase includes a review of historical information. The lead agency for the site will visit the site to evaluate the potential for a release of hazardous substances. The lead agency will determine if the site poses a threat to people and the environment and whether hazards need to be addressed immediately or additional site information will be collected.

Opportunities for Community Involvement During the PA/SI Phase:

- Provide any information you may have about the site to the department

National Priorities List (NPL) Site Listing Process *The Litton Systems, Inc. site is not on the NPL and will not participate in this phase of the cleanup process.

The NPL is primarily an information resource that identifies sites that warrant cleanup. It is a list of the worst hazardous waste sites identified by Superfund. The list is largely based on the score a site receives from the Hazard Ranking System. When a site is placed on the NPL, a public notice is issued, public comments are received and a responsiveness summary is issued.

Opportunities for Community Involvement During the NPL Listing Process:

- Read information about the site and the lead agency's proposal to list the site on the NPL
- If you have concerns about the site listing, prepare and submit comments on the proposal during the public comment period.



Remedial Investigation/Feasibility Study (RI/FS)

Also called site characterization, this stage involves an evaluation of the nature and extent of contamination at a site and assesses potential threats to human health and the environment. This stage of the process also includes evaluation of the potential performance and cost of the treatment options identified for a site. During the RI/FS phase, the department will issue a public notice to let the community know an information repository has been established for the site. At RI/FS and proposed plan completion, the department will issue a public notice, establish a public comment period and hold a public meeting.

Opportunities for Community Involvement During the RI/FS Phase:

- Read the proposed plan for cleaning up the site and participate in public meetings or other events regarding the proposed plan; ask questions and provide comments on plans for cleanup and on reuse options for the site during the public comment period
- Visit the information repository, read site documents and send comments to the department
- Read the responsiveness summary to learn plans to address community concerns

Characterization



Superfund Cleanup Process cont.

Selection of Remedy



Records of Decision (ROD)

The ROD explains which cleanup alternatives will be used at NPL sites. Leading up to the issuance of the ROD, the department recommends a preferred remedy and presents the cleanup plan in a document called a proposed plan, for public comment. Following the public comment period, the department issues a final ROD. The department will issue a public notice through local media and an email through the govDelivery system to those who have previously signed up for the email notification system.

Opportunities for Community Involvement during the ROD

- Tell the department how the community wants the site to be used in the future
- Read the ROD for cleaning up the site
- Participate in public events concerning the ROD
- Visit the information repository and read the ROD and supporting documents, such as the proposed plan and other information that formed the basis for the department's response selection

Cleanup



Remedial Design/Remedial Action (RD/RA)

Detailed cleanup plans are developed and implemented during the RD/RA stage. Remedial design includes development of engineering drawings and specifications for a site cleanup. Remedial action follows design, and involves the actual construction or implementation phase of site cleanup.

Opportunities for Community Involvement during RD/RA

- Learn about the final design for the cleanup reading information distributed by the department
- Visit outside the site work boundaries to observe cleanup activities
- Attend community meetings about progress at the site, become involved in the conversation
- Visit the information repository and read site information



Construction Completion

This is the point in the cleanup process when any necessary physical construction needed for the cleanup has been completed (even though final cleanup levels may not have been reached).

Superfund Cleanup Process cont.

Post-Construction



Post Construction Completion

This phase of the process ensures Superfund cleanups provide for the long-term protection of human health and the environment. Site activities during this phase include operating and maintaining long-term cleanup technologies in working order, regularly reviewing the site to be sure that the cleanup continues to be effective, and enforcing any necessary restrictions to minimize the potential for human exposure to contamination.

Opportunities for Community Involvement during Post Construction Completion

- Participate in and review results of regular site reviews
- Invite the department's project manager and community involvement coordinator to site events to discuss results of the five-year-review

National Priorities List Deletion

***This site is not on the NPL and will not be involved in this process**

Once cleanup goals have been achieved and sites are fully protective of human health and the environment, the site will be deleted from the NPL.

Opportunities for Community Involvement related to NPL Deletion

- Read the department's proposal to delete the site from the NPL and submit your comments to the department
- Read the department's responsiveness summary to find out how we are addressing the public comments received
- Read the final deletion report, which is available at the information repository



Site Reuse/Redevelopment

Once sites have been cleaned up, the department works with communities to help return these sites to productive use; these uses can be industrial or commercial, such as factories and shopping malls; community infrastructure, such as housing, public works facilities, and transportation; recreational, such as golf courses, parks and ball fields; or for ecological resources, such as wildlife preserves and wetlands. No matter what use is appropriate for a site, the community benefits from restoring the site to productivity. Property can once again add to the economic, social and ecological value of the community.

Opportunities for Community Involvement Related to Site Reuse

- Work with the department, your local government and your neighbors to explore redevelopment opportunities for the site
- Be supportive of redevelopment plans once they have been agreed upon

